



Expeditionary Logistics

Future Naval Capabilities

Quarterly Newsletter
August 2004

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HiCASS Contract Awards

The overall mission and goal of the Expeditionary Logistics Future Naval Capability program (ExLog FNC) is to identify those mature and evolving logistics technologies that, through focused investment, guidance and management, can be demonstrated to provide the required enabling capabilities. These capabilities will subsequently be available to the warfighter through a systematic transition to the acquisition process. The products of the ExLog FNC must be capabilities that are ready for transition to the acquisition community. In particular, the ExLog FNC intends to make a major impact on high capacity at-sea transfer which is identified as High Capacity Alongside Sea Base Sustainment (HiCASS). Under BAA 04-006 Titled: High Capacity At-Sea Transfer of Materials, Personnel and equipment, ONR awarded the first of 3 contracts in June 2004 in support of the Expeditionary Logistics Program's HiCASS efforts. The awardee was a team led by Rolls Royce. The second contract was awarded in July 2004 to a team led by Oceaneering International. The final HiCASS Contract has been awarded to a team led by Lockheed Martin. The composite team members are listed in Table 1.

Oceaneering International	Lockheed Martin Maritime Systems & Sensors	Rolls Royce Naval Marine, Inc
Advanced Technology & Research Corp	Virginia Polytechnic Institute and State University	Mooring Systems Ltd
Maersk Lines, Ltd	MacGregor USA, Inc	Craft Engineering Associates
NSWC – Carderock Codes 2820 & 984	Seatrax Marine Cranes	NSWC – Panama City
NIST	D&K Engineering	Fentek Americas
SAIC	Sea Systems Group, Inc	Oak Ridge National Laboratories
AMSEC	Synthesis Partners	National Steel & Shipbuilding Company
		NSWC – Carderock
		Michigan Technological Institute
		MacGregor USA, Inc
		Glosten Associates

Table 1. HiCASS Awardees

Industry Day Coming Soon !!!

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HiCASS Awardees Continued

These awards will have capped a year of effort by the ONR Expeditionary Logistics Program to scope and define the problem to the point that explicit contractor efforts could be undertaken. A HiCASS Industry Day for the effort was held 23 October 2003. The solicitation was published on 18 November 2003 and closed 16 January 2004. The selection was announced in February 2004.

Each of the 3 teams will assess technologies which can be used to sense, measure and predict the ocean surface and wave effects on the vessels that are transferring cargo. Where each team differs is the cargo transfer technology they have identified and their approach to assessing and demonstrating the utility of their work.

- The Rolls-Royce team effort will initially focus on implementing a version of the Pendulation Control System (PCS) demonstrated by the Naval Surface Warfare Center Carderock Division under an Advanced Technology Demonstration. Their PCS system will be augmented by an Integrated Riding Block Tag-Line System (IRBTS) as appropriate. The results will be validated via analyses and simulations.
- The Oceaneering International team effort will focus on developing a Macro-Micro crane that will support cargo transfers in a high sea state environment. That effort will culminate in a demonstration of a 1/24 scale working model crane system.
- The Lockheed Martin team effort will build on a "Super-Smart Crane Controller" that Prof Ali Nayfeh, of Virginia Polytechnic and State University, developed with prior ONR funding. Additionally, they will explore the utility of adding an IRBTS. They plan to demonstrate their system with a TACS test bed that exists at VPI, and also in a 3-dimensional and 1-dimensional Computer Aided Virtual Environment(CAVE).

The awarded efforts will result in preliminary designs that can be evaluated by the Government to identify which, if any, best address the cargo transfer requirements outlined in the solicitation. Those efforts will be reported in December 2004.



Heavy Equipment Transfer Capabilities

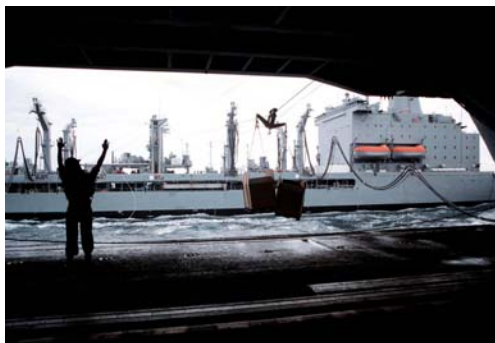
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HiCASS Technology Solutions Continued

The HiCASS capability was intended to offer new approaches for fuel, cargo, vehicle and personnel transfer in a sea way while underway. It is intended to address both transfer between two large vessels and transfer from a large vessel to a small vessel. It is expected that team efforts will be required to develop innovative and integrated technology solution for a HiCASS capability. Such technology solutions must build on existing naval systems and would likely include some combination of the following technologies:

- *Real-time tracking/sensing of own ship/platform motions and those of the other ship/platform involved in the at-sea material transfer*
- *Relative Motion Mitigation or Compensation*
- *Sensing of wave environment to enable predictive control*
- *Motion compensating transfer systems capable of the precision required*
- *Dynamic Positioning of Vessels in a Sea Way to enable Station Keeping*
- *Tension Sensing*
- *Situational Awareness*
- *Distance Sensing*
- *Load Position/ Dynamics Sensing*
- *Positive Load Control*
- *Autonomous Connection Technologies*



The ONR Expeditionary Logistics Program is preparing to follow the current BAA awards with an RFP for a follow-on multi-year contractual effort that would develop and demonstrate a capability to transfer cargo in relatively high sea states. This follow-on effort is expected to be an open competition and will result in a contractual vehicle that will allow the development work to proceed into research and development transition.



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HiCASS

High Capacity Alongside Sea Based Sustainment

Industry Day

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**Tuesday,
28 September
2004**

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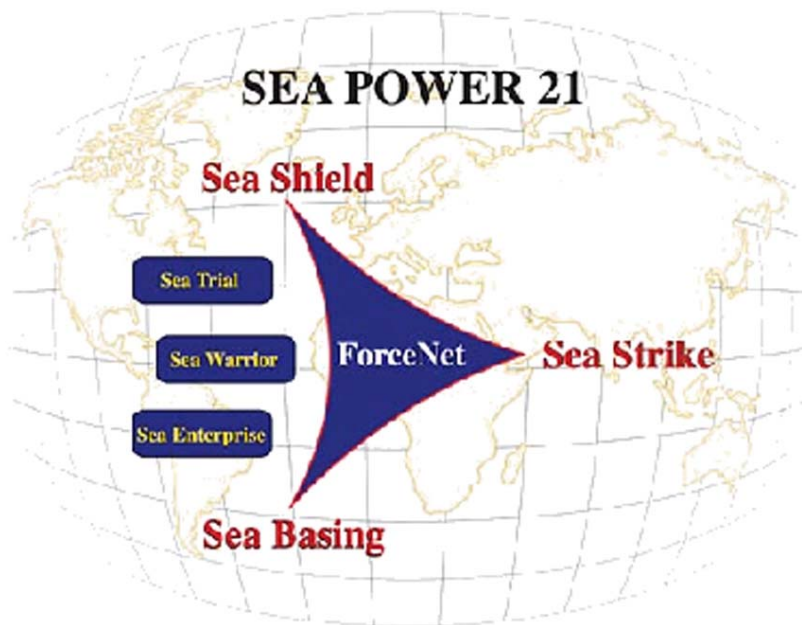


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POM-06 Technology Oversight Group Process Complete



The Technology Oversight Group (TOG) was established to provide an overarching Integrated Product Team (IPT) for ONR's Future Naval Capabilities (FNC) program. Its primary responsibility is to ensure that Science and Technology (S&T) dollars designated for the FNCs are reasonably balanced. While each of the FNCs has its own IPT to prioritize investments the FNC makes, the TOG approves the level of total FNC funding and ensures that funding is distributed between the FNCs consistent with the needs and priorities of the Navy and Marine Corps.

The TOG consists of flag officers from the Fleet/Force, Requirements, Resources, and Science and Technology communities. At present, VADM Nathman (N6N7) chairs the TOG. Voting members of the TOG include Dr. McGrath (ASN RDT&E), LtGen Hanlon (ACMC), and RADM Winnefeld (FFC). RADM Cohen (N091/CNR) serves as the Executive Secretary.

A new TOG process was instituted this year. The process relies heavily on input from N6/N7 in the areas of Sea Strike, Sea Shield, Sea Base, and ForceNET. Each product in all of the FNC's was assessed with regard to whether it would fill an identified war-fighting gap and whether it had a clear and credible transition path to reach the fleet.

Products that addressed a war-fighting gap and had a transition path were generally accepted. Products that had an agreed upon technology transition agreement (TTA) and were scheduled to transition to R&D in the next few years, but did not map to a specific gap were also funded. Any product that did not address a gap and had no transition path was not funded in this evaluation.

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Continue Oversight Group Process

The TOG focused only on on-going products and those that would begin in FY06. Decisions about products beginning after FY06 were deferred to the PR-07 TOG review to be conducted during FY05. For the Expeditionary Logistics (ExLog) FNC, those deferred decisions include Large Vessel Interface Roll On/Roll Off, Distributed Collaborative Planning, Sense and Respond Logistics, and Total Asset Visibility.

The impact of the TOG POM-06 FNC Review on the ExLog FNC was a net gain. Both the schedules and budgets for ongoing products under the Sea Base Integrated Operations Enabling Capability were increased and the Command and Control Distributed Collaborative C2 product was unchanged. Future planned starts approved by the TOG under the Sea Base Mobility Enabling Capability which include Beachable High Speed Connector, High Lift Density Air, High Rate Vertical/Horizontal Material Movement, and Small to Large Vessel At-Sea Transfer were generally expanded by 2 years (to FY09).

The ExLog FNC team is continuing to execute on-going product development efforts and is developing plans for the execution of the newly approved FY06 budgets resulting from this process. The team will continue planning to position these programs for prompt and effective execution in FY06.

Command and Control Combat Service Support Toolkit

CLC2S receives AAP Designation

The Common Logistics Command and Control System (CLC2S) received an Abbreviated Acquisition Program Designation from Marine Corps Systems Command in June of 2004. This accomplishment represents a huge success in transitioning the program from Science and Technology to actual implementation with Marine forces.



The USMC future doctrine, Ship to Objective Maneuver (STOM), requires logistics systems to deliver materials just in time in the right amount to the right place in a very dynamic environment. This mandates real-time information management and decision support as part of the solution. Therefore, the Expeditionary Logistics FNC focused one of its Enabling Capability (EC) FY02-04 investments onto Command & Control (C2) with the intent on developing a Combat Service Support (CSS) Toolkit.



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Continue Combat Service Support Toolkit

The CSS toolkit was designed to aide both logistics situational awareness and decision support with a family of tools that display both current and projected logistics status. This data would then be utilized to determine logistics sustainment and support analysis that enable the commander to determine the most appropriate support concept for a given mission profile. The Expeditionary Logistics Science & Technology investments developed capabilities that were demonstrated to primary customers, and are ready for transition to acquisition partners. These partners are the Program Execution Office for Expeditionary Warfare (Marine Corps System Command (MCSC)) and Naval Facilities Engineering Command (see other article in newsletter about CLC2S/JEWLS). The efforts put together jointly between the Marine Corp and the Naval Construction Forces (NCF) with the guidance from ONR developed the Common Logistics Command and Control System (CLC2S).

As a precursor to fielding CLC2S throughout the Navy and the Marine Corps, the Naval Construction Forces, in cooperation with Headquarters Marine Corps, Marine Corps Systems Command, the Naval Expeditionary Logistics Center and the Naval Facilities Engineering Services Center, embarked on a series of exercises and field tests to provide users of CLC2S the requisite levels of training and field experience with the application before a real-world deployment of the system. Most recently, the NCF used CLC2S in the Bearing Duel Exercise at Ft. Hunter-Liggett with Seabees and Marines using the entire functionality of the system in an operational setting. In the fall, a Naval Mobile Construction Battalion is currently scheduled to deploy to the Middle East and augment the Marine Expeditionary Group with CLC2S serving as their tactical logistics system. The series of exercises sought to learn from and capitalize on many of the lessons learned from the Marines' use of CLC2S in Afghanistan during Operation Enduring Freedom and in Kuwait with the Marines Logistics Command in support of Operation Iraqi Freedom.

Command and Control Combat Service Support Toolkit

CLC2S/JEWLS Awards

The Common Logistics Command and Control System (CLC2S) together with the Joint Expeditionary Warfare Logistics System (JEWLS) delivers a tactically deployable web-enabled information system that provides logistics command and control capabilities for Joint Naval Expeditionary Forces. The JEWLS is an innovative IT solution sponsored by the Department of the Navy eBusiness Operations Office, and developed by the Naval Facilities Engineering Command in collaboration with the ONR and the Marine Corps.

"This is exactly what the Navy needs right now!"

Hon Gordon England (April04) after a brief explanation of CLC2S/JEWLS



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Continue CLC2S/JEWLS Awards

Some of the recent awards received by CLC2S/JEWLS include:

Intergovernmental Solutions Award

(May 2004) presented at the Management of Change Conference held in Philadelphia on May 24-26. This award, presented by the American Council for Technology (ACT), is given to information technology solutions that provide intergovernmental collaboration; show measurable results in improving an agency's ability to meet its mission; have widespread national or regional application; and use innovative technology to improve a business practice.

"Marine Logistics Command (MLC) tested functionality of CLC2S Version 1.0 in Kuwait during OIF. CLC2S has tremendous potential to serve as a logistics C2 tool and is an aggressive effort to provide near real time In Transit Visibility (ITV) and Total Asset Visibility (TAV)."

Maj Kevin R. Scott (Current Operations Officer, 2nd FSSG)

Department of the Navy eGovernment "Leadership in Technology Solutions

Award" (June 2004) – to be presented by DON CIO at the Naval IT Summit. This summit is a meeting of the DON Information Management/Information Technology executive leadership team (DON CIO and Deputy CIOs, Navy and Marine Corps) with the Navy Echelon II and Marine Corps Major Subordinate Command information officers.

Society of American Military Engineers - Project of the Year (February 2004) was the CLC2S, a team effort of several Navy and Marine Corps commands.

In addition, JEWLS will be deployed in support of Operation Iraqi Freedom. Rear Admiral Kubic observed CLC2S/JEWLS in action at a Field Exercise and was impressed enough to call for deployment. It has already been successfully used in Kandahar, Afghanistan and in Operation Iraqi Freedom. PEO C4I and Space PMW 151 has expressed interest in adding links between CLC2S/JEWLS and the Naval Tactical Command Support System and the Shipboard non-tactical automated data processing program Automated Medical System.

"Deployed ashore in Kandahar Afghanistan in support of Operations ENDURING FREEDOM/SWIFT FREEDOM... As the MSSG Commander, it provided me real-time up to date information on my people, equipment and sustainment in order to make informed and timely support decisions while both embarked aboard ship and while supporting joint and coalition forces ashore."

LtCol W. Mark Faulkner (MSSG-26 Commander)

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Highlights & Accomplishments

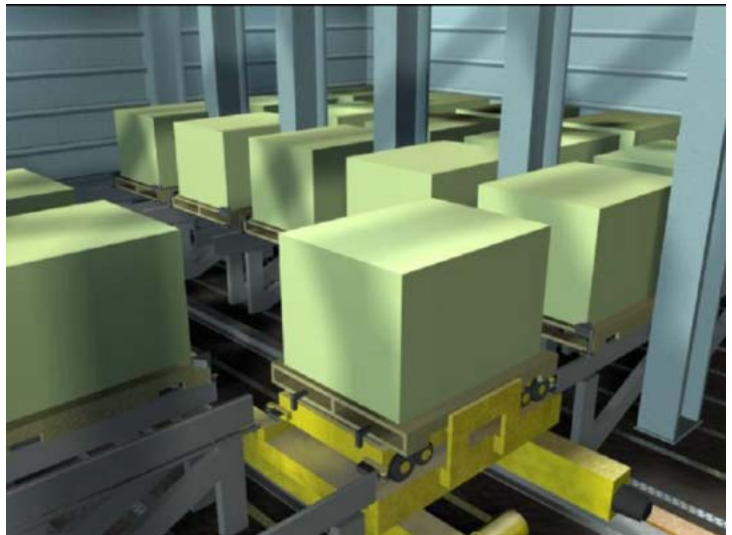
Large Vessel Interface Lo/Lo (LVI Lo/Lo)

Three HiCASS contracts have been let to the teams led by Rolls-Royce, Oceaneering, and Lockheed Martin. The team leads held Kick-Off meetings. The stakeholders for the technologies being pursued were in attendance at the meetings. Representatives from PEO Ships PMS325, OPNAV N75, N81 and N42, USMC, Ship Builders, NSWC and ONR participated and provided valuable discussion on the direction of the technology development.

Automated Warehouse (AW)

ASRS

General Dynamics Armament and Technical Products (GDATP) recently began a four-month effort to design an Automated Stowage and Retrieval System (ASRS). The purpose of this project is to resolve specific technology issues related to the "marinization" of existing commercial ASRS technologies for use in the shipboard environment. Outcomes will consist of an overall ASRS system design for a T-AKE freeze/chill hold; mechanical and electrical design details; and shipboard integration, cost, weight, power usage analyses. Because the system design is based upon actual T-AKE freeze/chill hold design specifications and load-out data, this effort will provide accurate throughput, selectivity and stowage density analyses for comparison with current (known) cargo movement metrics. This project paves the way for two option phases; Option 1 which results in the fabrication and land based testing of a full-scale segment of the ASRS developed in the base period; and Option 2 which will provide a prototype ASRS for integration into a vessel of opportunity for sea based testing in the 2005-2006 time frame to support MPF(F).





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Highlights & Accomplishments

Naval Force Sustainment (NFS)

The objective of the Blast Resistant Container program is to develop enabling technology that will facilitate shipping of mixed hazard classes of materials together in one larger container. For example, fuzes, primers, and munitions might be shipped together. In that regard, a capability has been developed to model and assess the ability of lightweight, high strength, material systems and container structures to contain blasts. Additionally, ONR and its Executive Agent, Earle Naval Weapons Station, have contracted to fabricate containers that will be used to assess the ability of one material system, Spectra™, to contain the blast of 1 lb of high explosive (C4).

In this past quarter:

- o The contract to fabricate the test articles has been let. Delivery is scheduled in August.
- o Spectra™ material property measurements were completed in June. The data from those measurements will be used to support blast code predictions and analyses of the structures that will be tested.
- o Computer runs designed to size the dynamic range and frequency response of the instrumentation needed to support the field tests are in process.
- o Blast tests are currently planned for September 2004.

Distributed Collaborative Command and Control (DCCC)

Ground Logistics C2

- The Common Logistics Command and Control System (CLC2S) 2.0 Virtual Trainer is complete and distributed. The CLC2S computer based training tool is currently available. The virtual trainer provides computer based instruction on all four modules of CLC2S (Logistics Planning and Execution, Inventory Management, Rapid Request Tracking System and Engineering Planning and Execution). It is an easy to follow step-by-step process that covers all aspects of CLC2S. A quiz concludes each lesson to test the user's retention of knowledge. Access to the CLC2S training materials will be available on the marine.net training environment.
- CLC2S Interoperability. NFESC had preliminary discussions about interfacing the ONR developed Expeditionary Decision Support System (EDSS) with CLC2S. EDSS is being fielded on ARG ships and will be transitioned to MARCORSYSCOM via a Technology Transition Agreement. NFESC is in the process of gathering information about CLC2S in order to facilitate interface with EDSS.



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Distributed Collaborative Command and Control (DCCC) Ground Logistics C2 (continued)

•Engineering Planning and Execution Module for CLC2S. Engineering Planning and Execution, or Eng P/E as it is more commonly known, provides an automated capability to rapidly and precisely develop engineering/construction project plans. It also provides an extensive web based engineering project archive capability.

Representatives of the USMC and NCF engineer community provided feedback and suggested additions to the Eng P/E module. The ideas, which included additional C2PC and BOM integration and the addition of a Project Planner, were noted and later prioritized for incorporation into the software. The Contractor recently developed user functionality screens and architecture.

These new capabilities to Eng P/E module are nearing completion. A user test will be conducted the week of August 30. The module will be ready for Field Exercises upon successful completion of the user test.

Eng P/E will be used by all engineers throughout the MAGTF and NCF, to include both at the component level – the CE, GCE, ACE and CSSE – and the organizational level – the combat engineer battalions in the Division, the engineer support battalions in the FSSGs, the MWSSs in the Wing, and the application is also in regular use by the Naval Mobile Construction Battalions – the Seabees.

Naval Logistics C2

• Exploring Transition Opportunities for NLC2. PEO C4I and Space PMW 151 met with NFESC to discuss transition of NLC2 to the Naval Tactical Command Support System. PMW 151 mentioned that effort and funds are required to provide integrated logistics support. PMW 151 also provided a list of general characteristics that NLC2 must have to ensure compatibility with NTCSS. PMW 151 and NFESC agreed to remain in contact and provide mutual support to further transition efforts.

**Next ExLog FNC Newsletter
due out in October.**

We welcome questions and comments.

Please contact

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for inputs**